



A remarkable opportunity is now available to improve the environmental soundness of the biomedical research enterprise.

Guest Editorial

The Environment and Biomedical Research

The administration and Congress intend to increase funding for U.S. scientific research significantly. As for biomedical research, some congressional leaders seek to double funding for the National Institutes of Health (NIH) in the next 5 years; the increase for funding for the next fiscal year (FY) will be 14%. Total funding in those 5 years will be (assuming necessary increments to equal that total) \$119 billion. In FY 2005 the annual budget would be about \$26 billion, with a continuing buildup thereafter. Funding for biomedical research portfolios in other federal agencies will also increase. These funds will cause a major economic boom in nonprofit biomedical research; it is to be expected that for-profit expenditures will increase greatly as well. Companies providing research equipment and supplies will also participate in that expansion.

Enormously increased expenditures at university, college, and independent research center campuses will occur for new construction, including upgrades and new laboratory and office equipment, all with energy use implications. There will also be a significant increase in the types and volume of wastes (solid, hazardous chemical, medical pathological, radioactive, and multihazardous) that will require management and appropriate disposal.

How can the environmental health leadership develop a program of pollution prevention and energy efficiency to prevent this enormous growth in the biomedical research enterprise from creating severe increases in pollution deleterious to human health and the environment? How can such a program have spin-off uses for other scientific research areas for which increased funding also will be available?

Considerable support to deal with these issues is likely. The White House has promulgated a number of requirements for federal activities regarding pollution prevention, energy efficiency, and other environmental issues, and will be interested in supporting this initiative. The National Institute of Environmental Health Sciences (NIEHS), an institute of the NIH, has indicated its strong support for a program of improving the environmental soundness of the biomedical research enterprise, both nonprofit and for-profit. The U.S. Congress has given its support to NIEHS' efforts.

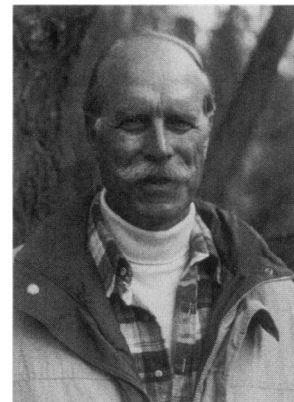
The U.S. House of Representatives FY 1999 appropriations bill for the Departments of Labor, Health and Human Services, and Education included a paragraph that states

The Committee understands that NIEHS is working with its laboratories and offices to help make it more environmentally sound. The Committee commends NIEHS for its efforts and hopes that other medical and scientific research facilities will also take the necessary steps to become more environmentally sound.

The U.S. Senate's counterpart bill report stated

The Committee has learned . . . that NIEHS is leading an effort to help make the medical research field more environmentally sound, by working with both intramural and extramural laboratories. The Committee strongly supports this activity as it recognizes that virtually every environmental or pollution problem is, or will become, a medical or public health problem.

Chairman John E. Porter of the House Subcommittee on Labor, Health and Human Services, and Education Appropriations commented about the impacts of such increases upon environmental concerns in a videotaped statement in June 1998:



This will mean much greater activity and therefore an increase in the kinds of waste that can be very damaging to the environment . . . Wouldn't it be a great irony if the healthcare industry and the biomedical research community in the United States ignored environmental matters and caused the kind of pollution that can adversely affect the health of our country? Obviously, it is a tremendous responsibility of the healthcare industry and research to take environmental matters into account . . . I don't think that either healthcare workers or biomedical researchers put this at a high enough priority. They need to look at the huge effect that their activities have on our economy and on our environment.

Porter noted that the NIH has taken the lead in reducing the use of environmentally damaging products such as chemicals, especially mixed waste and mercury, and that during the past 3 years, the institutes have saved several million dollars through energy efficiency programs. "This is an effort that must pervade the entire research community," he said.

A national program should be developed, with the following four components:

1. A national conference to highlight the issues, profile current "best practices," and suggest methods of implementing environmentally sound practices, including those in the entire research supply chain, which would require each link in the chain, from raw material provider to manufacturer to user, to improve environmental performance. The conference would bring together leaders from federal agencies and national associations such as biomedical and clinical research and related organizations; university and college associations (especially involving the Association of Higher Education Facilities Officers who plan, develop, construct and run buildings and facilities at 3,600 campuses); industry manufacturers and suppliers of pharmaceuticals, chemicals, research and medical supplies; waste management companies; construction and architectural organizations; environmental organizations; voluntary health organizations; and other interested organizations to be identified.
2. Following the conference, development of a national education and training program to promote environmental soundness at campuses and facilities that receive biomedical research grants, combining the efforts of the researchers and the facility managers.
3. Development of a research agenda both for the improvement in the use and disposal of biomedical research materials and for building design and construction of research facilities, including energy efficiency and development of standards for healthy building design.
4. Development of a clearinghouse to inform the field of best practices available for widespread, including international, use (a "virtual clearinghouse" on the Internet would be the most useful form).

Leaders from the fields noted above should come together for a planning session in late 1998 or early 1999. Planning for an education and training program, a research agenda, and a clearinghouse should proceed concurrently with conference planning.

The conference should be held in November or December 1999, which would permit a full year of planning.

Two spin-off activities are likely, and many more will become evident during the above-proposed activities. First, as organizations work on these issues, it will become apparent that continuing collaborative efforts are needed not only to improve environmental soundness in basic and clinical biomedical research but also in the healthcare enterprise generally, and an organizational structure should be developed to pursue them—perhaps the creation of a Council of Healthcare and Medical Research Professionals for the Environment, (1) composed of a wide spectrum of healthcare and research organizations.

Second, throughout the process there will be the potential to determine best practices and to apply lessons learned and products developed to the nonbiomedical scientific enterprise, which will also experience rapid growth. A campus-based education program as described above should be adapted to deal with this opportunity.

There will be many benefits of such an effort, including improved energy efficiency that will save money for additional research, use and

disposal of alternative chemicals and other research materials that can protect workers and probably save money, and improved healthy workplaces for researchers.

One additional benefit is that research teams, by participating in such an effort, will be taking responsibility for the protection of the environment as an integral part of the disease prevention and healing mission of biomedical research. If such actions are properly promulgated to the community where the research is done, the public will be assured that its environment is being protected and will look favorably on the researchers, on the research being done, and on the campus where it takes place.

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REFERENCES

1. Grupenhoff JT. The case for a council of health care and medical research professionals for the environment. National Association of Physicians for the Environment [Online], 1998. Available: www.napenet.org/council.html [cited October 1998].



37th European Congress of Toxicology

Oslo, Norway

27–30 June 1999

The program will contain the following symposia and workshops:

Symposia

- Neurotoxicity mechanisms
- "Ecstasy" toxicity
- DNA repair and genomic instability
- Genetics of phase II enzymes and toxicology
- Metal toxicology
- Environmental pollutants in the Arctic
- Environmental toxicology of oil production
- Immunotoxicity in wildlife species
- Apoptosis in toxicity and cancer
- Toxicant-induced respiratory inflammation

Workshops

- Teaching toxicology
- Trends in regulatory immunotoxicology
- Cancer chemoprevention
- Drug-induced vascular injury
- Alternative methods in carcinogenic testing
- Models in colon carcinogenesis
- Molecular end points in toxicology

The deadline for abstract submissions is 1 March 1999. For further information, please contact:

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